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PROCESSING COSTS OF SOYBEAN-OIL MILLS
1951-52 AND 1952-53



United States Department of Agriculture
Agricultural Marketing Service

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PROCESSING COSTS OF SOYBEAN-OIL MILLS
1951-52 AND 1952-53

By Calvin C. Spilsbury, agricultural economist

SUMMARY

This preliminary report gives the findings of an economic study, made by industry and Government, of soybean processing costs. It is expected that a more comprehensive report will be issued at a later date, but because the results of a preliminary tabulation of the reports from industry would appear to have immediate value to soybean processors and others, those results are given herein. They indicate that the total cost to mill operators for processing a bushel of soybeans averaged 37.3 cents during the 1952-53 operating season 1/ in comparison with 36.2 cents a bushel during 1951-52. As used in this report, total processing cost includes costs of acquisition, transportation, and current operating, fixed and general costs, and sales and package costs.

At solvent-extraction plants the total cost of processing soybeans averaged 37.6 cents a bushel during 1952-53 whereas this cost at screw-press mills averaged only 32.8 cents. During the 1951-52 season, total cost averaged 36.5 cents and 34.4 cents a bushel for the respective operations.

Processors operating solvent-extraction and screw-press mills as combined operations had the highest average total cost of processing soybeans--38.0 cents a bushel during the 1952-53 season. For this group the average cost was 36.3 cents in 1951-52.

Acquisition cost, including freight and trucking charges, averaged for all mills about 4 cents a bushel both seasons. Sales and package cost, which includes bags and tags, averaged 4.2 and 5.2 cents a bushel in 1952-53 and 1951-52, respectively.

1/ The operating season begins on October 1 and ends on September 30, in the year following.

NATURE OF THE STUDY

For several years past, trade journals and news releases reported from time to time that it was impossible for soybean processors to buy a bushel of soybeans and simultaneously sell the products derived therefrom--oil and meal--without incurring operating losses. Because a cost study representative of the soybean processing industry has never been made, it has been difficult for various segments of the industry and others to visualize the amount of margin required to cover processors' total operating and marketing costs and provide a normal profit. As a result the National Soybean Processors Association asked the Department of Agriculture to assist it in planning a research project and analyzing data collected by the Association from the soybean processors and making the results available to indicate processors' operating and marketing costs.

A schedule of the costs of processing soybeans was developed jointly by the Association and representatives of the Department and was coded and mailed by the Association. The response to this cost schedule provided a sample covering approximately 45 percent of the soybean mills. It covered 60 percent of the total soybeans processed in the United States in 1951-52 and 62 percent of the soybeans processed in 1952-53. The returns provided substantial representation of all important segments of the industry, both screw-press and solvent-extraction mills, including a wide range in annual volume of soybeans processed. All distributions by annual volume indicated a tendency toward a skewed, or slightly "off center," distribution. The sample was composed of 37 percent screw-press mills, 46 percent solvent-extraction mills, and 17 percent combined screw-press and solvent-extraction mills in 1951-52, and 26 percent screw-press mills, 65 percent solvent-extraction mills, and 9 percent combined mills in 1952-53. The solvent-extraction mills processed 83 percent of the soybeans reported in the survey in the 1951-52 season and 91 percent in 1952-53. Screw-press mills processed 17 percent in 1951-52 and only 9 percent in 1952-53.

The volume of soybeans processed in the United States since 1935 has increased eightfold to tenfold. Since the 1950-51 season more than 200 million bushels, or 80 percent, of the beans harvested have been processed each season. During this period there has been a steady increase in the modernization of processing facilities, and a marked increase in the percentage of soybeans processed at solvent-extraction plants. In the 1951-52 season 73.7 percent of the soybeans processed were processed by the solvent-extraction method. As only 1.4 percent of the soybeans processed that season was by the hydraulic-press process, the cost of processing by this method was not included in this report.

Costs of processing soybeans were tabulated for the 1951-52 and 1952-53 seasons according to the following major categories: (1) Acquisition, (2) current operating, (3) fixed and general, (4) total current and fixed

and general cost 2/, (5) sales and package, and (6) total processing cost. Acquisition cost is composed of freight 3/, trucking cost, and other acquisition cost. Current operating cost represents wages for labor and charges for power and light, fuel and steam, water, maintenance, materials and repairs, and solvent, sundry expenses, and storage and miscellaneous operating costs. Fixed and general cost includes salaries, office and administrative expense, depreciation, interest, insurance, license fees and taxes, travel and auto expenses and other indirect or nonoperating costs of processing soybeans. Total current and fixed and general cost is the sum of current operating cost and fixed and general cost. Sales and package cost sums up the cost of brokerage, bags and tags, and other selling expense. Screw-press mills, of course, had no solvent cost. The cost data collected did not include any interest on owned capital.

The data presented are in cents per bushel and are tabulated in such a way that a processor can compare his operations for the 1951-52 and 1952-53 seasons with the average for mills using the same type of equipment and processing either a similar volume of soybeans or volumes above or below his own that season. Obviously the average of all mills does not indicate the most efficient, or the lowest cost mill; however, it does provide a basis of comparison which may help in indicating where economies can be made. Cases in which certain cost categories for a mill appear to be out of line with the average may indicate where efforts may be made to control costs. Such cases may provide an incentive to increase efficiency by studying and regulating certain marketing and processing methods. A soybean processor, by decreasing total marketing and processing costs, not only will increase his returns but also contribute to improved efficiency in the marketing process. Increased efficiency in marketing and processing soybeans will help in both the short and the long term to improve the competitive position of the industry and benefit both producers and consumers.

COMPARATIVE PROCESSING COSTS, BY TYPE AND SEASON

A trend toward solvent-processing methods has occurred in the industry. This is the result primarily of the economic advantages gained in the increased returns received from the additional 2 pounds of oil recovered from a bushel of soybeans by solvent plants which was valued at about 22.8 and 24.2 cents in 1951-52 and 1952-53, respectively. This increased return has been offset somewhat by the difference in cost of processing and by the reduction in yield of soybean-oil meal in the solvent process. During the 1951-52 season solvent-extraction plants had an average total current and fixed and general processing cost of 2.9 cents more per bushel than screw-press plants. In the 1952-53 season this difference increased to 5.6 cents. The total cost of processing soybeans at solvent-extraction mills also averaged somewhat above the cost at screw-press mills during the two seasons reported.

2/ Often referred to as bulk cost.

3/ Usually referred to in the industry as freight loss.

A preliminary tabulation of reports received from the industry indicates that soybean processors' major costs, by type of plant, were as summarized in table 1.

Table 1.--Processing soybeans: Major costs per bushel, by items and by type of mills, United States, 1951 and 1952 1/

| Cost item | Type of mill | | | | | | Average | |
|----------------------------------|---------------------|------|-------------|----------------|-----------|------|---------|------|
| | Solvent extraction: | | Screw press | Combination 2/ | all mills | | | |
| | 1951 | 1952 | 1951 | 1952 | 1951 | 1952 | 1951 | 1952 |
| <u>Processing cost:</u> | | | | | | | | |
| Acquisition | 4.3 | 4.3 | 4.2 | 3.7 | 2.5 | 2.7 | 4.0 | 4.1 |
| Current, fixed and general: | | | | | | | | |
| Current operating | 15.6 | 16.6 | 14.3 | 12.5 | 15.6 | 16.6 | 15.5 | 16.3 |
| Fixed and general | 11.7 | 12.8 | 10.1 | 11.2 | 12.5 | 14.2 | 11.6 | 12.8 |
| Total current, fixed and general | 27.3 | 29.4 | 24.4 | 23.8 | 28.1 | 30.8 | 27.0 | 29.0 |
| Sales and package | 4.9 | 4.0 | 5.8 | 5.3 | 5.7 | 4.6 | 5.2 | 4.2 |
| Total processing | 36.5 | 37.6 | 34.4 | 32.8 | 36.3 | 38.0 | 36.2 | 37.3 |

1/ Season begins October 1 and ends September 30 of the next year. Weighted by number of bushels processed. Items do not add to totals because of rounding and minor adjustments.

2/ Solvent-extraction and screw-press mills at same location reported as a unit.

The total current and fixed and general cost of processing soybeans, which does not include acquisition and transportation costs, and sales and package cost averaged 29.0 cents a bushel in the 1952-53 season, an increase of 2 cents over the cost in the previous season. Operators of solvent-extraction plants had an average total current and fixed and general cost of 29.4 cents a bushel in 1952-53 and 27.3 cents in 1951-52. Screw-press operations were found to have total current and fixed end general costs which averaged 23.8 cents and 24.4 cents a bushel in 1952-53 and 1951-52, respectively. Total current and fixed and general costs, however, were highest at mills with combined operations where they averaged 30.8 cents a bushel in 1952-53 and 28.1 cents in 1951-52.

Solvent-extraction operators reported a somewhat lower cost of bags and tags than was reported for screw-press mills. However, the average percentage of meal sold in bags by solvent-extraction mills was 36 percent

as compared with an average of 70 percent for screw-press mills. Cost of sales (brokerage plus other selling expense) at solvent-extraction mills, on the other hand, averaged 1.6 cents a bushel both seasons as compared with an average of 0.7 cent at screw-press mills.

Processing operations indicated a strong inverse relationship between processing cost and volume of soybeans processed each season. The economies achieved by mills processing a large annual volume of soybeans are indicated throughout this report. In this study both solvent-extraction and screw-press mills had their highest per-bushel costs in their lowest annual volumes. The highest total cost of processing soybeans by the solvent-extraction method was for mills processing 1 million bushels and less each season. This cost averaged 41.5 cents a bushel in 1951-52 and 49.1 cents in 1952-53. Those solvent-extraction mills processing from $3\frac{1}{2}$ to 5 million bushels of soybeans each season had the lowest total cost for this method--an average of 32.5 cents a bushel in 1951-52 and 34.1 cents in 1952-53.

Between the 1951-52 and 1952-53 seasons an increase or decrease in the volume of soybeans processed brought an inverse change in processing cost per bushel more than 85 percent of the time, both at solvent-extraction mills and screw-press mills. However, every solvent-extraction plant having a decrease in bushels processed in 1952-53 compared with 1951-52 had an increase in current and fixed and general cost.

PROCESSING COSTS AT SOLVENT-EXTRACTION MILLS

The average processing cost per bushel of soybeans in 1952-53, as indicated by the reports received from the solvent-extraction mills, was 37.6 cents. This was an increase of 1.1 cents a bushel above the 1951-52 cost and was influenced by small increases in both current operating and fixed and general costs.

About the same percentage of solvent-extraction mills increased their volume of soybeans processed in 1952-53 over the previous season as those mills showing a decrease in volume. Ninety-two percent of the solvent-extraction plants reporting costs for the two seasons showed an inverse relationship between total current and fixed and general cost per bushel of soybeans processed and their annual volume. The volume of soybeans processed in the 1952-53 season decreased below the 1951-52 volume at 50 percent of the mills and in every case this decrease was associated with an increase in total current and fixed and general cost. Although the same percentage of mills reported an increase in volume, only 42 percent had a resulting decrease in total current and fixed and general cost. The remaining 8 percent of the solvent-extraction mills showed increases both in annual volume and in unit costs.

The average processing costs per bushel of soybeans as tabulated for solvent-extraction mills in the 1952-53 and 1951-52 seasons are found in tables 3 and 4. During the two seasons total acquisition costs in all groups remained about the same.

In all groups labor was the largest single item of cost and averaged about 6 cents a bushel. However, in the low volume groups the cost for labor averaged from 7.7 to 9.1 cents a bushel. Labor costs averaged about 20 percent of total current and fixed and general cost.

A decrease in unit costs was found in most cost categories at the solvent-extraction mills as the annual volume of soybeans processed increased. However, for the two top volume groups this relationship was reversed. Mills processing more than 5,000,000 bushels both seasons had higher average unit costs in nearly every major cost category than those mills processing from 3,500,001 to 5,000,000 bushels. Important differences are indicated in the higher freight loss, and costs for labor, storage, administration, and bags and tags.

Solvent-extraction mills had a wide variation in all categories of cost, some mills reporting total processing costs that were more than double the costs at other mills. Mechanical breakdowns and low volume as against continuous capacity volume no doubt are important factors that caused this variation. However, as has been indicated by studies made in other oilseed industries, this wide distribution in costs appears to be usual.

PROCESSING COSTS AT SCREW-PRESS MILLS

Operators of screw-press mills not only reported lower average processing costs than did operators of solvent-extraction plants, but they reported a somewhat wider range in most cost categories. This wide range, however, was in a lower annual volume than the average for solvent plants. Total processing cost at screw-press mills having a volume under 500,000 bushels for the season averaged 46.1 cents a bushel in 1951-52, as compared with 29.6 cents a bushel for mills processing more than 1,500,000 bushels, a range of 16.5 cents a bushel between averages of the extreme groups. In the 1952-53 season screw-press mills indicated a corresponding range--13.2 cents a bushel. Average processing cost in 1952-53 was 1.6 cents below 1951-52 levels, changing from 34.4 to 32.8 cents a bushel. The decrease was distributed about equally among costs for acquisition, sales and package, and total current and fixed and general. The decrease in total current and fixed and general cost, however, occurred despite an average increase in fixed and general cost.

Since the 1948-49 operating season the volume of soybeans processed by the screw-press mills has continued to decrease. In 1951-52, 24.9 percent of the soybeans were processed by this method. Thirty percent of the screw-press mill operators who submitted data for 1951-52 in this survey either did not operate their plants in 1952-53 or had changed to the solvent-extraction method. Eighty-six percent of the screw-press mill operators who reported both seasons had a smaller annual crush in 1952-53.

Of those screw-press mills indicating a smaller volume of soybeans processed in 1952-53, 83 percent had an increase in total current and fixed and general costs.

It is obvious that when a comparison of total current and fixed and general cost for all screw-press mills reporting in 1951-52 with similar costs for all mills reporting in 1952-53 showed a decrease, and a comparison of costs for identical mills in the two seasons showed an increase, it was the lower-cost mills that continued to operate.

Labor cost was the largest processing cost for most screw-press mills. As indicated in tables 5 and 6, screw-press mills grouped by annual volume reported a particularly wide range in their labor cost. Mills operating in the lowest annual volume group had an average labor cost that was more than double the cost at mills in each of the two largest volume groups, both seasons.

Either trucking cost or package cost was the largest cost at some screw-press mills. Trucking cost averaged about 1 cent a bushel above that of solvent-extraction mills in 1951-52, and increased to 1.5 cents above in 1952-53. However, freight loss was 0.9 cent and 1.8 cents lower, respectively, than at solvent-extraction mills. The average trucking costs at screw-press mills increased in the 1952-53 season but average freight losses dropped more than the trucking costs increased. These costs remained about the same both seasons at solvent-extraction plants. Acquisition cost averaged about 4 cents a bushel at screw-press mills, and sales and package cost averaged more than 5 cents a bushel.

PROCESSING COSTS AT COMBINATION MILLS

Soybean processors who continued to operate their screw-press mills after building solvent-extraction plants at the same locations had the highest total processing costs during the 1952-53 season. During this season costs for maintenance, materials, repairs, salaries, and depreciation, per bushel of soybeans processed, were particularly out of line with costs at the single method mills. Storage costs continued to be high but not so high as at solvent-extraction mills. Screw-press mills indicated storage costs considerably below those reported by combination and solvent mills. Combination mills were operated with the lowest average cost of power, light, fuel, steam, and water in 1952-53, when all mills averaged about 3.5 cents a bushel for these combined costs. They also reported low freight and trucking cost and had somewhat lower acquisition costs than straight solvent mills.

About 45 percent of the combination plants covered in this report failed to operate their screw presses on soybeans during the second season. This fact would indicate that the practice of maintaining a screw-press operation to augment a solvent-extraction operation has not been too successful from a processing cost standpoint. Every mill operating in this combination group in the 1952-53 season processed more than 1 million bushels. Processing costs as reported for combination mills are summarized in table 7.

PROCESSING COSTS AS INFLUENCED BY METHODS AND PRACTICES

The wide variation found in processing costs in the soybean industry is the result of many factors other than type and annual capacity. Processing and marketing conditions are never the same at the different soybean processing mills. The efficiency of product recovery and the degree of product specialization in a plant are factors not measured in this study. Repair and maintenance practices and depreciation policy, wage policy, buying and selling methods, auxiliary equipment utilization, type of power (whether generated at plant or purchased), physical organization and age of the plant, and other variables, of course, all influence processing cost from year to year.

There are also various unpredictable costs. During wet seasons the cost of drying beans may add considerably to processing cost. Other factors that have important but irregular influences on costs are forced shutdowns, irregularity of operations, and so on.

PROCESSORS' PLANT INVESTMENT

Total plant valuation of reporting solvent-extraction mills indicated an average of \$1.06 valuation for each bushel of soybeans processed in the 1952-53 season as compared with \$0.66 for the screw-press mills and \$0.78 for mills with combined operations. All processors reported a total plant investment of \$146,508,810 in 1952-53 or \$1.01 a bushel processed that season. Solvent-extraction operators reported their total plant valuation at \$130,242,926 (table 3). Screw-press operators reported plant valuation at \$7,318,467 (table 5) and combination mill operators at \$8,947,417 (table 7).

Processing costs do not include returns to processors on their capital invested in processing facilities. It is recognized, however, that the soybean processors must expect in the long run to receive a return above all costs of processing which will be sufficient to attract capital and capable management to maintain the industry as an adequate and efficient provider of marketing services.

Sufficient information was not developed in this study to permit an accurate estimate of charges necessary to yield specific rates of return on equity capital. It is recognized, however, that competition for investment capital is as great as it is for any other productive factor.

If it is desired to determine an amount per bushel required to provide a certain annual rate of return on equity capital, this can be computed by multiplying the desired percentage rate of return by the owner's equity and dividing the result by the number of bushels of soybeans to be processed.

Formula example:

Equity capital, \$_____, times the planned rate of return, ____ percent, divided by the quantity of soybeans processed annually, ____ bushels, equals ____ cents per bushel needed above the cost of ____ cents per bushel for processing to yield this ____ percent rate of return on the equity capital before Federal taxes. If the tax rate were 50 percent and the same rate of return after taxes is desired, double the cents per bushel to be added to the cost of processing per bushel.

Table 2.--Processing soybeans: Average cost per bushel, by items,
United States, 1951 and 1952 1/

| Item | Season beginning October 1 | |
|--|----------------------------|----------------------|
| | 1951 <u>Cents</u> | 1952 <u>Cents</u> |
| <u>Processing cost:</u> | | |
| <u>Acquisition</u> | | |
| Freight-loss | 2.9 | 3.0 |
| Trucking | .5 | .5 |
| Other | .6 | .7 |
| Total | 4.0 | 4.1 |
| <u>Current, fixed and general</u> | | |
| <u>Current operating</u> | | |
| Labor | 5.9 | 6.2 |
| Power and light | 1.5 | 1.6 |
| Fuel and steam | 2.0 | 1.9 |
| Water | .07 | .08 |
| Maintenance, materials and repairs | 1.7 | 1.6 |
| Solvent | 1.1 | 1.3 |
| Mill and elevator sundry expense | .9 | .9 |
| Storage, rented | 2.2 | 2.6 |
| Other mill expense | .3 | .2 |
| Total | 15.5 | 16.3 |
| <u>Fixed and general</u> | | |
| Salaries, including supt. | 2.6 | 2.7 |
| Depreciation | 2.9 | 3.2 |
| Interest and exchange 2/ | 1.8 | 2.1 |
| Insurance | .5 | .5 |
| Licenses and taxes 3/ | .8 | .8 |
| Office | .4 | .4 |
| Travel and auto | .2 | .1 |
| Administrative or head office | 2.3 | 2.4 |
| Other | .3 | .4 |
| Total | 11.6 | 12.8 |
| Total current and fixed and general | 27.0 | 29.0 |
| <u>Sales and package</u> | | |
| Brokerage | .8 | .9 |
| Bags, tags, etc. | 3.7 | 2.6 |
| Other selling expense | .6 | .7 |
| Total | 5.2 | 4.2 |
| Total processing cost | 36.2 | 37.3 |
| | <u>Bushels</u> | <u>Bushels</u> |
| Total soybeans processed--reported: | 147,362,829 | 145,770,475 |

1/ Weighted by number of bushels processed. Items do not add to totals because of rounding and minor adjustments.

2/ Interest on borrowed capital, including interest on working capital.

3/ Except Federal income tax.

Table 3.--Solvent-extraction mills: Average cost per bushel for processing soybeans, by volume, 1952 1/

| Item | Bushels processed per mill during season | | | | | | Average of all solvent mills | |
|--|--|-------|--|-------|--|-------|------------------------------------|--|
| | 1,000,001 : 2,000,001 : 3,500,001 : | | 1,000,000 : to : to : to : 5,000,001 : | | and under : 2,000,000 : 3,500,000 : 5,000,000 : and over : | | | |
| | Cents | Cents | Cents | Cents | Cents | Cents | | |
| <u>Processing cost:</u> | | | | | | | | |
| <u>Acquisition</u> | | | | | | | | |
| Freight-loss | 4.5 | 1.6 | 2.7 | 3.0 | 3.7 | 3.1 | | |
| Trucking | 1.7 | 1.8 | .6 | .1 | .04 | .4 | | |
| Other | .1 | .7 | .7 | .7 | .9 | .8 | | |
| Total | 6.3 | 4.1 | 4.0 | 3.8 | 4.6 | 4.2 | | |
| <u>Current, fixed and general</u> | | | | | | | | |
| <u>Current operating</u> | | | | | | | | |
| Labor | 9.1 | 8.8 | 6.2 | 5.0 | 6.3 | 6.2 | | |
| Power and light | 1.8 | 1.4 | 2.1 | 1.2 | 1.2 | 1.5 | | |
| Fuel and steam | 1.8 | 2.3 | 1.8 | 2.1 | 2.2 | 2.1 | | |
| Water | .2 | .04 | .1 | .1 | .1 | .1 | | |
| Maintenance, materials and repairs | 2.4 | 1.5 | 2.0 | 1.6 | 1.1 | 1.5 | | |
| Solvent | 2.4 | 1.1 | 1.2 | 1.0 | 1.3 | 1.2 | | |
| Mill and elevator sundry expense | .9 | .8 | .7 | .7 | 1.2 | .9 | | |
| Storage, rented | .6 | 1.8 | 2.9 | 2.9 | 3.2 | 2.9 | | |
| Other mill expense | .5 | .04 | .06 | .1 | .4 | .2 | | |
| Total | 19.4 | 17.8 | 17.1 | 14.7 | 17.0 | 16.6 | | |
| <u>Fixed and general</u> | | | | | | | | |
| Salaries, including supt. | 4.4 | 2.5 | 2.4 | 1.9 | 3.0 | 2.6 | | |
| Depreciation | 4.2 | 5.3 | 3.0 | 2.6 | 3.2 | 3.2 | | |
| Interest and exchange 2/ | 3.4 | 2.6 | 2.6 | 1.8 | 1.6 | 2.0 | | |
| Insurance | 2.1 | .9 | .5 | .4 | .3 | .4 | | |
| Licenses and taxes 3/ | 1.0 | 1.1 | .7 | .8 | .8 | .8 | | |
| Office | .8 | .6 | .3 | .4 | .5 | .4 | | |
| Travel and auto | .3 | .1 | .1 | .1 | .2 | .1 | | |
| Administrative or head office | 2.0 | 4.5 | 2.0 | 2.9 | 2.4 | 2.6 | | |
| Other | .6 | .9 | .4 | .5 | .3 | .4 | | |
| Total | 19.0 | 18.9 | 12.2 | 11.9 | 12.2 | 12.8 | | |
| Total current and fixed and general | 38.5 | 36.7 | 29.3 | 26.7 | 29.3 | 29.4 | | |
| <u>Sales and package</u> | | | | | | | | |
| Brokerage | .8 | 1.0 | 1.1 | .8 | .6 | .8 | | |
| Bags, tags, etc. | 3.5 | 4.4 | 1.8 | 2.1 | 2.6 | 2.4 | | |
| Other selling expense | .1 | .4 | .3 | .7 | 1.3 | .8 | | |
| Total | 4.4 | 5.8 | 3.2 | 3.6 | 4.5 | 4.0 | | |
| Total processing cost | 49.1 | 46.6 | 36.5 | 34.1 | 38.3 | 37.6 | | |

Dollars

Total plant valuation of reporting mills 130,242,926

| Bushels | Bushels | Bushels | Bushels | Bushels | Bushels |
|-----------|-----------|------------|------------|------------|-------------|
| 4,022,942 | 8,078,239 | 31,495,550 | 32,120,786 | 47,533,395 | 123,250,912 |

Total soybeans processed--reported 4,022,942 8,078,239 31,495,550 32,120,786 47,533,395 123,250,912

1/ Season begins October 1 and ends September 30 of the next year. Weighted by number of bushels processed. Items do not add to totals because of rounding and minor adjustments.

2/ Interest on borrowed capital, including interest on working capital.

3/ Except Federal income tax.

Table 4.--Solvent-extraction mills: Average cost per bushel for processing soybeans, by volume, 1951 1/

| Item | Bushels processed per mill during season | | | | | |
|--|--|-----------|------------|------------|------------|-------------|
| | : 1,000,001 : 2,000,001 : 3,500,001 : | | | : Average | | |
| | : 1,000,000 : to : to : to : 5,000,001 : of all | | | | | |
| | : and under : 2,000,000 : 3,500,000 : 5,000,000 : and over : solvent mills | | | | | |
| | Cents | Cents | Cents | Cents | Cents | Cents |
| <u>Processing cost:</u> | | | | | | |
| <u>Acquisition</u> | | | | | | |
| Freight-loss | 3.7 | 1.3 | 2.9 | 3.0 | 3.5 | 3.2 |
| Trucking | 2.6 | 2.2 | .8 | .1 | .02 | .4 |
| Other | .1 | .9 | .7 | .7 | .7 | .7 |
| Total | 6.4 | 4.4 | 4.4 | 3.8 | 4.3 | 4.3 |
| <u>Current, fixed and general</u> | | | | | | |
| <u>Current operating</u> | | | | | | |
| Labor | 8.7 | 7.7 | 6.1 | 5.4 | 6.0 | 6.1 |
| Power and light | 1.3 | 1.5 | 1.8 | 1.1 | 1.2 | 1.3 |
| Fuel and steam | 2.5 | 3.6 | 2.1 | 1.7 | 2.0 | 2.1 |
| Water | .02 | .004 | .03 | .1 | .1 | .1 |
| Maintenance, materials and repairs | 1.8 | 2.0 | 1.6 | 1.6 | 1.3 | 1.5 |
| Solvent | 1.4 | .9 | .8 | 1.0 | 1.3 | 1.1 |
| Mill and elevator sundry expense | .6 | 1.1 | .6 | .9 | 1.2 | 1.0 |
| Storage, rented | --- | .3 | 3.5 | 1.3 | 2.2 | 2.2 |
| Other mill expense | .2 | .001 | .1 | .02 | .5 | .3 |
| Total | 16.6 | 16.6 | 16.7 | 13.0 | 15.9 | 15.6 |
| <u>Fixed and general</u> | | | | | | |
| Salaries, including supt. | 4.7 | 2.1 | 1.9 | 1.9 | 2.8 | 2.5 |
| Depreciation | 4.0 | 5.1 | 2.8 | 2.8 | 2.6 | 2.9 |
| Interest and exchange 2/ | 2.1 | 1.6 | 2.3 | .8 | 1.3 | 1.5 |
| Insurance | 2.1 | .7 | .4 | .3 | .3 | .4 |
| Licenses and taxes 3/ | 1.0 | 1.4 | .9 | .9 | .6 | .3 |
| Office | .7 | .2 | .3 | .2 | .5 | .4 |
| Travel and auto | .3 | .1 | .1 | .03 | .2 | .1 |
| Administrative or head office | --- | 4.6 | 2.0 | 4.2 | 2.3 | 2.7 |
| Other | .7 | .5 | .3 | .5 | .2 | .3 |
| Total | 15.4 | 16.2 | 12.0 | 11.6 | 10.8 | 11.7 |
| Total current and fixed and general | 32.0 | 32.8 | 28.7 | 24.6 | 26.7 | 27.3 |
| <u>Sales and package</u> | | | | | | |
| Brokerage | 1.1 | .7 | .9 | .7 | .6 | .7 |
| Bags, tags, etc. | 1.7 | 3.4 | 3.2 | 2.6 | 3.7 | 3.3 |
| Other selling expense | .3 | .2 | .6 | .9 | 1.1 | .9 |
| Total | 3.1 | 4.3 | 4.8 | 4.2 | 5.4 | 4.9 |
| Total processing cost | 41.5 | 41.5 | 37.9 | 32.5 | 36.3 | 36.5 |
| | Bushels | Bushels | Bushels | Bushels | Bushels | Bushels |
| Total soybeans processed--reported | 2,651,568 | 5,782,702 | 24,876,440 | 17,121,853 | 51,088,016 | 101,520,579 |

1/ Season begins October 1 and ends September 30 of the next year. Weighted by number of bushels processed. Items do not add to totals because of rounding and minor adjustments.

2/ Interest on borrowed capital, including interest on working capital.

3/ Except Federal income tax.

Table 5.--Screw-press mills: Average cost per bushel for processing soybeans, by volume, 1952 1/

| Item | Bushels processed per mill during season | | | | |
|--|--|---------------------|--------------------|--------------------|-------------|
| | 250,000 : 250,001 : 500,001 : | | Average | | |
| | and : to : to : | | of all screw- | | |
| | under | 500,000 : 750,000 : | 750,001 : and over | 750,000 : and over | press mills |
| | Cents | Cents | Cents | Cents | Cents |
| <u>Processing cost:</u> | | | | | |
| <u>Acquisition</u> | | | | | |
| Freight-loss | 0.04 | 2.3 | 0.3 | 1.3 | 1.3 |
| Trucking | 2.5 | 1.0 | 7.0 | 1.3 | 1.9 |
| Other | --- | .4 | .3 | .5 | .4 |
| Total | 2.5 | 3.7 | 7.5 | 3.1 | 3.7 |
| <u>Current, fixed and general</u> | | | | | |
| <u>Current operating</u> | | | | | |
| Labor | 11.5 | 9.8 | 5.4 | 4.5 | 5.8 |
| Power and light | 2.2 | 2.5 | 2.9 | 1.8 | 2.2 |
| Fuel and steam | 2.4 | 1.4 | 1.7 | 1.1 | 1.5 |
| Water | .04 | .04 | .1 | .03 | .04 |
| Maintenance, materials and repairs | 1.3 | 2.7 | 2.1 | 1.5 | 1.3 |
| Mill and elevator sundry expense | .5 | .6 | .5 | .4 | .4 |
| Storage, rented | 1.6 | .2 | 1.5 | .3 | .6 |
| Other mill expense | --- | .2 | .1 | .1 | .1 |
| Total | 20.0 | 17.3 | 14.3 | 10.1 | 12.5 |
| <u>Fixed and general</u> | | | | | |
| Salaries, including supt. | 5.5 | 2.2 | 3.1 | 2.5 | 2.7 |
| Depreciation | 5.7 | 2.6 | 1.4 | 1.8 | 2.2 |
| Interest and exchange 2/ | 3.1 | 1.0 | 2.3 | 1.9 | 1.9 |
| Insurance | 1.2 | 1.4 | .5 | .4 | .7 |
| Licenses and taxes 3/ | .9 | 1.4 | 1.0 | .5 | .9 |
| Office | .4 | .3 | 1.2 | .3 | .5 |
| Travel and auto | .2 | .1 | --- | .2 | .1 |
| Administrative or head office | --- | .6 | 1.9 | 1.2 | 1.1 |
| Other | .3 | .5 | .04 | .5 | .4 |
| Total | 17.3 | 10.2 | 14.0 | 10.4 | 11.2 |
| Total current and fixed and general | 37.3 | 27.5 | 28.7 | 20.5 | 23.8 |
| <u>Sales and package</u> | | | | | |
| Brokerage | 1.0 | .8 | .2 | .6 | .6 |
| Bags, tags, etc. | 5.8 | 6.5 | 4.3 | 4.0 | 4.6 |
| Other selling expense | .2 | .93 | --- | .2 | .1 |
| Total | 6.9 | 7.2 | 4.5 | 4.9 | 5.3 |
| Total processing cost | 46.7 | 38.4 | 40.7 | 28.5 | 32.8 |
| | | | | | Dollars |
| Total plant valuation of reporting mills | | | | | 7,318,467 |
| | Bushels | Bushels | Bushels | Bushels | Bushels |
| Total soybeans processed--reported | 505,617 | 1,817,919 | 1,856,107 | 6,897,968 | 11,077,611 |

1/ Season begins October 1 and ends September 30 of next year; weighted by number of bushels processed.
Items do not add to totals because of rounding and minor adjustments.

2/ Interest on borrowed capital, including interest on working capital

3/ Except Federal income tax.

Table 6.--Screw-press mills: Average cost per bushel for processing soybeans, by volume, 1951 1/

| Item | Bushels processed per mill during season: | | | | |
|--|---|-------------------------|-----------------|---------------|------------|
| | : 500,000 : 500,001 : 1,000,001 : 1,500,001 : | : and : to : to : and : | : of all screw- | : press mills | |
| | Cents | Cents | Cents | Cents | Cents |
| <u>Processing cost:</u> | | | | | |
| <u>Acquisition</u> | | | | | |
| Freight-loss | 1.4 | 2.9 | 3.1 | 1.9 | 2.3 |
| Trucking | 1.7 | 1.5 | 1.7 | 1.2 | 1.4 |
| Other | --- | 1.1 | .4 | .4 | .5 |
| Total | 3.1 | 5.5 | 5.1 | 3.4 | 4.2 |
| <u>Current, fixed and general</u> | | | | | |
| <u>Current operating</u> | | | | | |
| Labor | 9.6 | 6.1 | 4.0 | 4.1 | 5.1 |
| Power and light | 2.5 | 2.6 | 3.0 | 1.3 | 2.4 |
| Fuel and steam | 1.9 | 1.5 | 1.1 | 1.2 | 1.4 |
| Water | .04 | .1 | --- | .01 | .02 |
| Maintenance, materials and repairs | 2.1 | 1.7 | 3.2 | 2.6 | 2.4 |
| Mill and elevator sundry expense | .7 | .5 | .4 | .3 | .4 |
| Storage, rented | 1.5 | 3.4 | 6.4 | .4 | 2.3 |
| Other mill expense | .3 | .1 | .2 | .01 | .1 |
| Total | 18.7 | 16.0 | 18.4 | 11.1 | 14.3 |
| <u>Fixed and general</u> | | | | | |
| Salaries, including supt. | 4.8 | 2.4 | 1.8 | 1.9 | 2.5 |
| Depreciation | 3.4 | 1.5 | 1.2 | 1.7 | 1.8 |
| Interest and exchange 2/ | 1.4 | 1.3 | 3.2 | 1.5 | 1.7 |
| Insurance | 1.1 | .6 | .1 | .3 | .5 |
| Licenses and taxes 3/ | .9 | 1.1 | .6 | .6 | .3 |
| Office | 1.0 | .8 | .7 | .3 | .7 |
| Travel and auto | .3 | .03 | --- | .1 | .1 |
| Administrative or head office | .4 | 1.0 | 1.6 | 1.3 | 1.2 |
| Other | .5 | .3 | .2 | .4 | .3 |
| Total | 13.7 | 9.0 | 11.2 | 9.6 | 10.1 |
| Total current and fixed and general | 32.4 | 25.0 | 29.6 | 20.7 | 24.4 |
| <u>Sales and package</u> | | | | | |
| Brokerage | .8 | .9 | 1.2 | .5 | .7 |
| Bags, tags, etc. | 9.4 | 5.8 | 1.8 | 5.0 | 5.0 |
| Other selling expense | .4 | --- | --- | .02 | .04 |
| Total | 10.5 | 6.7 | 3.1 | 5.5 | 5.3 |
| Total processing cost | 46.1 | 37.2 | 37.8 | 29.6 | 34.6 |
| | Bushels | Bushels | Bushels | Bushels | Bushels |
| Total soybeans processed--reported | 1,648,313 | 5,118,419 | 3,452,296 | 9,459,358 | 19,678,386 |

1/ Season begins October 1 and ends September 30 of next year. Weighted by number of bushels processed.
Items do not add to totals because of rounding and minor adjustments.

2/ Interest on borrowed capital, including interest on working capital.

3/ Except Federal income tax.

Table 7.--Combination (solvent-extraction and screw-press) mills: Average cost per bushel for processing soybeans, by volume, 1951, and all combination mills, 1951 and 1952 1/

| Item | : Bushels processed per : Average of all | | | |
|--|--|----------------|----------------|----------------|
| | : mill during season : combination mills | | | |
| | : 2,500,000 : 2,500,001 : : | | | |
| | : and under : and over : 1951 : 1952 | | | |
| | Cents | Cents | Cents | Cents |
| <u>Processing cost:</u> | | | | |
| <u>Acquisition</u> | | | | |
| Freight-loss | 1.9 | 2.3 | 2.2 | 2.1 |
| Trucking | .1 | .1 | .1 | .3 |
| Other | .2 | .2 | .2 | .3 |
| Total | 2.3 | 2.6 | 2.5 | 2.7 |
| <u>Current, fixed and general</u> | | | | |
| <u>Current operating</u> | | | | |
| Labor | 7.5 | 5.1 | 5.7 | 5.9 |
| Power and light | 2.3 | 1.2 | 1.6 | 2.4 |
| Fuel and steam | .8 | 2.7 | 2.1 | .9 |
| Water | .03 | .1 | .1 | .1 |
| Maintenance, materials and repairs | 1.3 | 2.6 | 2.2 | 2.6 |
| Solvent | 1.1 | 1.0 | 1.0 | 1.6 |
| Mill and elevator sundry expense | .6 | .6 | .6 | .4 |
| Storage, rented | 2.0 | 2.4 | 2.3 | 2.1 |
| Other mill expense | .1 | .2 | .2 | .5 |
| Total | 15.7 | 15.6 | 15.6 | 16.6 |
| <u>Fixed and general</u> | | | | |
| Salaries, including supt. | 4.3 | 2.5 | 3.1 | 4.0 |
| Depreciation | 3.3 | 4.4 | 4.1 | 4.0 |
| Interest and exchange 2/ | 3.1 | 1.8 | 2.1 | 2.2 |
| Insurance | 1.0 | 1.0 | 1.0 | .9 |
| Licenses and taxes 3/ | .8 | .6 | .7 | .6 |
| Office | .5 | .4 | .4 | .2 |
| Travel and auto | .3 | .4 | .4 | .5 |
| Administrative or head office | .1 | 1.0 | .7 | 1.0 |
| Other | .4 | .02 | .1 | .2 |
| Total | 14.0 | 11.9 | 12.5 | 14.2 |
| Total current and fixed and general | 29.7 | 27.5 | 28.1 | 30.8 |
| <u>Sales and package</u> | | | | |
| Brokerage | 2.1 | 1.0 | 1.3 | 1.9 |
| Bags, tags, etc. | 6.1 | 3.6 | 4.3 | 2.5 |
| Other selling expense | .2 | .2 | .2 | .1 |
| Total | 8.3 | 4.8 | 5.7 | 4.6 |
| Total processing cost | 40.3 | 34.9 | 36.3 | 38.0 |
| | | | | <u>Dollars</u> |
| Total plant valuation of reporting mills | | | | 8,947,417 |
| | <u>Bushels</u> | <u>Bushels</u> | <u>Bushels</u> | <u>Bushels</u> |
| Total soybeans processed--reported | 6,915,697 | 19,248,167 | 26,163,964 | 11,441,952 |

1/ Season begins October 1 and ends September 30 of the next year. Weighted by number of bushels processed. Items do not add to totals because of rounding and minor adjustments.

2/ Interest on borrowed capital, including interest on working capital.

3/ Except Federal income tax.



